

The Adhesion of Abalone (*Haliotis Diversicolor*) Hemocyte is Regulated by Protein Kinase A Signal Transduction Pathway

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ABSTRACT

The adhesion of hemocytes plays an important role in the innate immunity of abalones. According to the results from this study, several conclusions about the role of PKA (protein kinase A) in the adhesion of abalone hemocytes. First, during cell adhesion, the amount of cAMP decreased in hemocytes. Second, elevation of cAMP inhibited cell adhesion. Third, the PKA inhibitor KT5720 enhanced the cell adhesion. Fourth, PKA activity decreased following the time course of incubation. Totally, these results strongly inferred that the adhesion of abalone hemocyte is regulated by PKA and the related signal transduction pathway. However, the another cAMP-mediated protein Epac wasn't involved to regulate the adhesion of hemocytes. Besides, due to RGD peptide could affect the cell adhesion, it suggested that the adhesion of abalone hemocytes was mediated by the interaction between integrin and fibronectin.

Key words: protein kinase A(PKA) 、 signal transduction 、 *Haliotis Diversicolor* 、 hemocyte 、 adhesion

蛋白質激酶A訊息傳導途徑調控九孔血液細胞的附著

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摘要

血液細胞的附著在九孔的先天免疫機制中扮演了重要的角色。本實驗有以下幾點發現：一、細胞附著的過程中，細胞內cAMP 的量會逐漸下降；二、加入cAMP analog 會抑制細胞的附著；三、Protein Kinase A 受到抑制物作用後，細胞的附著率反而明顯的提高；四、細胞附著的時間越長，PKA 的活性會隨著時間的增加而降低。以上實驗結果皆證實PKA 這條訊息傳導途徑參與並調控九孔血液細胞的附著。而另一條由cAMP 所調控的Epac 訊息傳導途徑則由於對Epac 具有專一性的cAMP analog 對細胞的附著卻沒有任何影響，因此應與此細胞附著無關。另外，在實驗中亦發現，加入RGD 肽胜會抑制細胞的附著，推測細胞在附著的時候是經由細胞膜上的細胞附著分子integrin 與細胞間質中的fibronectin 相互作用，使得細胞可以附著。

關鍵詞：蛋白質激酶 A、訊息傳導、九孔、血液細胞、附著